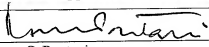


FORM PTO-1390 (REV 10-94)		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		DOCKET #: 5150-12PUS	
<b>TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371</b>					
				U.S. APPLICATION NO. <b>107009541</b> <small>(if known, use of CFR 1.5)</small>	
INTERNATIONAL APPLICATION NO. <b>PCT/EP00/04944</b>		INTERNATIONAL FILING DATE <b>30 May 2000</b>		PRIORITY DATE CLAIMED <b>10 June 1999</b>	
TITLE OF INVENTION <div style="text-align: center; padding: 5px;"><b>Method and Device for Adjusting Moisture in Cooking Devices</b></div>					
APPLICANT(S) FOR DO/EO/US <div style="text-align: center; padding: 5px;"><b>Werner SCHWARZBÄCKER and Jenö HORVATH</b></div>					
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:					
<ol style="list-style-type: none"> <li>1. <input checked="" type="checkbox"/> This is a <b>FIRST</b> submission of items concerning a filing under 35 U.S.C. 371.</li> <li>2. <input type="checkbox"/> This is a <b>SECOND</b> or <b>SUBSEQUENT</b> submission of items concerning a filing under 35 U.S.C. 371</li> <li>3. <input checked="" type="checkbox"/> This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).</li> <li>4. <input checked="" type="checkbox"/> A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claimed priority date.</li> <li>5. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2))           <ol style="list-style-type: none"> <li>a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input type="checkbox"/> has been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US)</li> </ol> </li> <li>6. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)).</li> <li>7. <input checked="" type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))           <ol style="list-style-type: none"> <li>a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau).</li> <li>b. <input checked="" type="checkbox"/> have been transmitted by the International Bureau.</li> <li>c. <input type="checkbox"/> have not been made; however, the time limit for making such amendments has NOT expired.</li> <li>d. <input type="checkbox"/> have not been made and will not be made.</li> </ol> </li> <li>8. <input checked="" type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).</li> <li>9. <input checked="" type="checkbox"/> An executed oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).</li> <li>10. <input type="checkbox"/> A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).</li> </ol>					
<b>Items 11. to 16. Below concern other document(s) or information included:</b>					
<ol style="list-style-type: none"> <li>11. <input type="checkbox"/> An Information Disclosure Statement under 37 CFR 1.97 and 1.98.</li> <li>12. <input checked="" type="checkbox"/> An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.</li> <li>13. <input checked="" type="checkbox"/> A <b>FIRST</b> preliminary amendment.           <div style="padding-left: 20px;"> <input type="checkbox"/> A <b>SECOND</b> or <b>SUBSEQUENT</b> preliminary amendment.           </div> </li> <li>14. <input type="checkbox"/> A substitute specification.</li> <li>15. <input type="checkbox"/> A change of power of attorney and/or address letter.</li> <li>16. <input type="checkbox"/> Other items or information (<i>specify</i>):</li> </ol>					

U.S. APPLICATION NO. (If known, select CFRE) <b>107009541</b>		INTERNATIONAL APPLICATION NO. <b>PCT/EP00/04944</b>		ATTORNEY'S DOCKET NUMBER <b>5150-12PUS</b>	
17.[x]The following fees are submitted:					
<b>Basic National Fee (37 CFR 1.492(a)(1)-(5)):</b> Search Report has been prepared by the EPO or JPO .....\$890.00 International preliminary examination fee paid to USPTO (37 CFR 1.482).....\$710.00 No international preliminary examination fee paid to USPTO (37 CFR 1.482) but international search fee paid to USPTO (37 CFR 1.445(a)(2)).....\$740.00 Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO.....\$1040.00 International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2)-(4) .....\$100.00					
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$	890.00
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	-0-
Claims	Number Filed	Number Extra	Rate		
Total Claims	23 - 20 =	3	x \$18.00	\$	54.00
Independent Claims	2 - 3 =	0	x \$84.00	\$	-0-
Multiple dependent claim(s) (if applicable)			+ \$280.00	\$	-0-
TOTAL OF ABOVE CALCULATIONS =				\$	944.00
Reduction of 1/2 for filing by small entity, if applicable.				\$	472.00
SUBTOTAL =				\$	472.00
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	-0-
TOTAL NATIONAL FEE =				\$	472.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by the appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property				\$	40.00
TOTAL FEES ENCLOSED				\$512.00	
Amount to be refunded:				\$	
charged:				\$	
a. [x]Two checks in the amounts of \$472.00 and \$40.00 to cover the above fees are enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. 03-2412 in the amount of \$_____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. [x]The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 03-2412. A duplicate copy of this sheet is enclosed.					
<b>NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137(a) or (b)) must be filed and granted to restore the application to pending status.</b>					
SEND ALL CORRESPONDENCE TO: <b>Thomas C. Pontani</b> Cohen, Pontani, Lieberman & Pavane 551 Fifth Avenue, Suite 1210 New York, New York 10176			 <b>Thomas C. Pontani</b> Registration Number: 29,763 December 7, 2001 Tel: (212) 687-2770		

By Express Mail # EV052763825US · December 7, 2001

Attorney Docket # 5150-12PUS

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re National Phase PCT Application of

Werner SCHWARZBÄCKER et al.

International Appln. No.: PCT/EP00/04944

International Filing Date: 30 May 2000

For: Method and Device for Adjusting Moisture in  
Cooking Devices

**PRELIMINARY AMENDMENT**

Assistant Commissioner for Patents

Washington, D.C. 20231

**BOX PCT**

S I R:

Prior to examination of the above-identified application please amend the  
application as follows:

In the Specification:

Please insert at page 1, line 3 the following headings:

--Background of the Invention

1. Field of the Invention--

Please insert at page 1, line 9, the following heading:

- 2. Description of the Related Art--

Please replace the paragraph beginning at page 1, line 21, with the following rewritten paragraph:

--U.S. Patent No. 5,083,505 discloses a method of regulating humidity either by introducing moisture in the form of steam into the cooking area or, to lower the humidity, either increasing the air flow through the cooking area or reducing the humidity by means of a condenser, which is designed as a surface condenser. Surface condensers are of complex construction and are relatively sluggish in terms of regulation.--

Please insert at page 2, line 17, the following heading:

--SUMMARY OF THE INVENTION--

Please replace the paragraph beginning on page 5, line 27, with the following rewritten paragraph:

--A cooking appliance for regulating or controlling the humidity and/or temperature in a cooking area for food includes a water-guiding device with a low heat capacity, which has a regulatable or controllable water intake and a water outlet and serves to produce at least one moving waterway of shallow water depth in a predetermined path. As a result, it is possible to carry out the method steps explained above in order to achieve the desired effects and advantages. The capacity for a rapid response in regulation or control is achieved by virtue of the fact that the water-guiding device has a low heat capacity since, by virtue of this property, the relatively thin film of water in the form of a waterway is only slightly affected by the heat capacity of the water-guiding device.--

Please insert at page 6, line 9, the following heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--

Please replace the paragraph beginning at page 8, line 19, with the following rewritten paragraph:

--Figure 2 shows a horizontal section of the illustration in figure 1 with the section passing through the uppermost region of the cooking appliance;--

Please insert at page 9, line 1, the following heading:

--DETAILED DESCRIPTION OF THE PRESENTLY PREFERRED EMBODIMENTS--

Please replace the paragraph beginning at page 9, line 1, with the following rewritten paragraph:

--As can be seen from figures 1 and 2, a cooking area 3 is separated off within a housing 1 of a cooking appliance by a dividing wall 2, in which shelves 4 for holding food to be processed are provided on a rack frame (not shown). On the opposite side of the dividing wall 2 from the cooking area 3 is a blower 5, which can be driven by a drive motor 6 and draws in the medium present in the cooking area 3 via a grille 7 and forces this medium into the cooking area via a heater 8 and slots 9. A steam generator 10 supplies the steam required to produce a steam atmosphere. Arranged on the opposite boundary wall of the cooking area 3 from the dividing wall 2, with a spacing relative to the latter, is a device 11, which is used to regulate or control the humidity and/or temperature in the cooking area. This device 11 has a water intake 12, a water-guiding device 13 and a collector 14, for water running down and condensate that forms.--

Please replace the paragraph beginning at page 9, line 21, with the following rewritten paragraph:

--Figure 3 shows a first embodiment of the device 11 which is used to regulate or control the humidity and/or temperature in the cooking area. The illustration in figure 3 shows essentially only arts of half of this device, the center line of which is denoted by 15. A water feed line 16 is indicated schematically in the center of the water intake 12, which is designed as a trough. Arranged in the water intake 12 are baffles 17, the height of which is less than the depth of the trough-type water intake 12. Their function is explained below.--

Please replace the paragraph beginning at page 12, line 15, with the following rewritten paragraph:

--Figure 6 shows another embodiment, which differs from the previous embodiments not only in its configuration but also as regards its arrangement. While the previous embodiments essentially have a vertically arranged water-guiding device, as can be seen from figures 1 to 5, the water-guiding device 11b in the exemplary embodiment in figure 6 is arranged so as to slope slightly relative to the horizontal direction in order to ensure a flow of water from the left-hand edge in figure 6 to the right-hand edge. The water-guiding device 11b comprises a sheet-metal panel 32, which has guide strips 33 which extend virtually over the entire length of the panel and between which the individual waterways 34, 35, 36 etc. are formed. These waterways are supplied from a water intake 12b, which is fed by a water feed line 16, for which reason small holes 38 are formed for this purpose in the side wall 37 of the water intake 12b that faces the water-guiding device 11b in order to distribute the water between the respective waterways 34, 35, 36 etc. In this exemplary embodiment, too, baffles 17b are arranged in the water intake 12b in order to supply a larger or smaller number of waterways with water, depending on requirements. The right-hand, a slot-free edge 39 of the water-guiding device 11b, which is at a lower level, slopes slightly in an arrow shape toward the center and is provided with a containment plate 40, which is interrupted in the center of the water-guiding device 11b. A drip tongue 41 is formed at this point in order to enable the water guided from the left-hand to the right-hand edge by the water-guiding device 11b to run off more efficiently and in a controlled manner. To prevent the water from overflowing at the lateral edges, low side walls 42 are provided to enclose the water-guiding device 11b.--

Please replace the paragraph beginning at page 13, line 16, with the following rewritten paragraph:

--Water is fed to the respective water-guiding device 11, 11a and 11b via the water intake 12, 12a and 12b, only a little water being fed in [in] the case of steady moisture removal from the cooking area, i.e. when the moisture removal rate is supposed to be low, this water distributing

itself between a few waterways in the vicinity of the water feed line 16. The water then flows along the path predetermined on the individual waterways 21, 23, 24 or 29 or 34, 35, 36 by corresponding guide elements in the form of elongate holes, slots or the like. During this process, the moving surface of the water is exposed to the atmosphere in the cooking area, so that, if the water is cold enough, moisture condenses at this water surface out of the medium present in the cooking area. The mixture of supplied water and condensate is then collected in the respective outlet and carried away. Care should be taken here to ensure that this water is drained off from the hot cooking area as quickly as possible to avoid re-evaporation.--

Please replace the paragraph beginning at page 14, line 11, with the following rewritten paragraph:

--Where the atmosphere of the cooking area is relatively dry, this water surface can cool the medium in the cooking area, thereby enabling not only the humidity in the cooking area to be regulated - as described previously - but also the temperature.--

In the Claims:

Please cancel claims 1-24 and enter new claims 25-47 as follows:

--25. (New) A method of regulating at least one of humidity and temperature in a cooking appliance with a cooking area for food, said method comprising

providing a water guiding device of low heat capacity in said cooking area for food, said device having at least one waterway,

providing a film of water having an exposed surface which moves continuously along said at least one waterway under the effect of gravity, said exposed surface having an area and an intensity of movement, and

regulating the intensity of movement and the area of the exposed surface of the film so that a phase change from both steam to water and from water to steam may be regulated at said exposed surface.--

--26. (New) A method as in claim 25 wherein said water guiding device is provided with an angle of inclination and the intensity of movement of said exposed surface is regulated by changing the angle of inclination.--

--27. (New) A method as in claim 25 wherein the intensity of movement of the exposed surface is regulated by providing obstacles in said at least one waterway.--

--28. (New) A method as in claim 27 wherein the intensity of movement is regulated by changing at least one of the number, size, and position of the obstacles.--

--29. (New) A method as in claim 25 wherein the film of water is provided by feeding a volume of water per unit time to said water guiding device, said intensity of movement and said area of said exposed surface of said film being regulated by regulating the volume of water per unit time being fed to said device.--



--30. (New) A method as in claim 25 further comprising circulating a medium through said cooking area, and regulating the flow of said medium through said cooking area so that said medium flows in a direction which is one of tangential to or counter to the movement of said exposed surface of said film.--

--31. (New) A method as in claim 25 further comprising circulating a medium through said cooking area, and regulating the flow of said medium through said cooking area so that said medium flows in a direction which is perpendicular to the exposed surface of said film.--

--32. (New) A cooking appliance with a cooking area for food, said appliance comprising

a water guiding device of low heat capacity in said cooking area for food, said device having at least one waterway,

a water intake for providing a film of water having an exposed surface which moves continuously along said at least one waterway under the effect of gravity, said exposed surface having an area and an intensity of movement, said water intake being regulatable to regulate the area and the intensity of movement of said exposed surface, and

a water outlet for receiving said film of water from said at least one waterway.--

--33. (New) A cooking appliance as in claim 32 wherein said water guiding device is a thin-walled panel having guide elements which determine direction and speed of flow of said exposed surface of said film in each said waterway.--

--34. (New) A cooking appliance as in claim 33 wherein said panel consists of metal.--

--35. (New) A cooking appliance as in claim 33 wherein said guide elements comprise a plurality of elongate holes which are set obliquely to the direction of movement in a herringbone pattern.--

--36. (New) A cooking appliance as in claim 32 further comprising guide elements formed by a plurality of elongate holes which are formed parallel to the direction of movement and limit each of said waterways, said elongate holes having a spacing in the direction of movement that is smaller than their length.--

--37. (New) A cooking appliance as in claim 32 further comprising guide elements which delimit at least one of said waterways and are formed as at least one of raised features and recessed embossed features and beads and grooves.--

--38. (New) A cooking appliance as in claim 32 further comprising guide elements which delimit at least one of said waterways, said guide elements comprising guide strips.--

--39. (New) A cooking appliance as in claim 38 wherein said guide strips are continuous along each said waterway.--

--40. (New) A cooking appliance as in claim 38 wherein said guide elements comprise a plurality of guide strips.--

--41. (New) A cooking appliance as in claim 32 wherein said water guiding device is a panel having apertures on both sides of each of said waterways.--

--42. (New) A cooking appliance as in claim 32 wherein said water guiding device comprises a thin-walled panel having an end and a U-shaped channel mounted on said end.--

--43. (New) A cooking appliance as in claim 32 wherein said water guiding device comprises a grille having bars which extend in the direction of movement of the water surface.--

--44. (New) A cooking appliance as in claim 32 wherein said water guiding device has interruptions.--

--45. (New) A cooking appliance as in claim 32 further comprising obstacles in said waterway.--

--46. (New) A cooking appliance as in claim 45 wherein at least one of size, number, and position of said obstacles can be varied.--

--47. (New) A cooking appliance as in claim 32 comprising a water intake connecting a plurality of said waterways so that the waterways are supplied with water one after another as the quantity of water supplied to said waterways increases.--

IN THE ABSTRACT

Please delete the Abstract and insert the "Abstract of the Disclosure" attached hereto.

REMARKS

The specification has been amended to add headings as required by U.S. practice. Other changes are for consistency with other parts of the specification and do not represent new mater.

Newly submitted claims eliminate multiple dependencies and are believed to comply with 35 U.S.C. §112.

Claims 25 is narrower than original claim 7 insofar as it recites regulating both the intensity of movement and the area of the water surface, and regulating a steam to water phase change as well as a water to steam phase change. These limitations define the invention more clearly over the category X references cited in the International Search Report, which all relate to a water to steam phase change. A primary goal of the present invention, is also to enable a steam to water phase change.

Early consideration and action on the merits are solicited.

Any additional fees or charges required at this time in connection with the application may be charged to our Patent and Trademark Office Deposit Account No. 03-2412.

Respectfully submitted,  
COHEN, PONTANI, LIEBERMAN & PAVANE

By: 

Thomas C. Pontani  
Reg. No. 29,763  
551 Fifth Avenue, Suite 1210  
New York, N.Y. 10176  
(212) 687-2770

7 December 2001

By Express Mail # EV052763825US · December 7, 2001

**AMENDMENTS TO THE SPECIFICATION AND CLAIMS SHOWING CHANGES**

**In the Specification:**

Please replace the paragraph beginning at page 1, line 21, with the following rewritten paragraph:

--[EP 0 386 862 B1 has furthermore disclosed] U.S. Patent No. 5,083,505 discloses a method of regulating humidity either by introducing moisture in the form of steam into the cooking area or, to lower the humidity, either increasing the air flow through the cooking area or reducing the humidity by means of a condenser, which is designed as a surface condenser. Surface condensers are of complex construction and are relatively sluggish in terms of regulation.--

Please replace the paragraph beginning on page 5, line 27, with the following rewritten paragraph:

--A cooking appliance for regulating or controlling the humidity and/or temperature in a cooking area for food[, in particular for carrying out the method as claimed in any of claims 1 to 8 is characterized in that] includes a water-guiding device with a low heat capacity, which has a regulatable or controllable water intake and a water outlet and serves to produce at least one moving waterway of shallow water depth in a predetermined path[, is used in the cooking area]. As a result, it is possible to carry out the method steps explained above in order to achieve the desired effects and advantages. The capacity for a rapid response in regulation or control is achieved by virtue of the fact that the water-guiding device has a low heat capacity since, by virtue of this property, the relatively thin film of water in the form of a waterway is only slightly affected by the heat capacity of the water-guiding device.--

Please replace the paragraph beginning at page 8, line 19, with the following rewritten paragraph:

--Figure 2 shows a [vertical] horizontal section of the illustration in figure 1 with the section passing through the uppermost region of the cooking appliance;--

Please replace the paragraph beginning at page 9, line 1, with the following rewritten paragraph:

--As can be seen from figures 1 and 2, a cooking area 3 is separated off within a housing 1 of a cooking appliance by a dividing wall 2, in which shelves 4 for holding food to be processed are provided on a rack frame (not shown). On the opposite side of the dividing wall 2 from the cooking area 3 is a blower 5, which can be driven by a drive motor 6 and draws in the medium present in the cooking area 3 via a grille 7 and forces this medium into the cooking area via a heater 8 and slots 9. [10 indicates a] Δ steam generator[, which] 10 supplies the steam required to produce a steam atmosphere. Arranged on the opposite boundary wall of the cooking area 3 from the dividing wall 2, with a spacing relative to the latter, is a device[, denoted overall by] 11, which is used to regulate or control the humidity and/or temperature in the cooking area. This device 11 has a water intake 12, a water-guiding device 13 and a collector[, denoted by] 14, for water running down and condensate that forms.--

Please replace the paragraph beginning at page 9, line 21, with the following rewritten paragraph:

--Figure 3 shows a first embodiment of [a device that is denoted by 11 in figures 1 and 2 and] the device 11 which is used to regulate or control the humidity and/or temperature in the cooking area. The illustration in figure 3 shows essentially only arts of half of this device, the center line of which is denoted by 15. [In this device, denoted overall by 11, a] Δ water feed line, 16 is indicated schematically in the center of the water intake 12, which is designed as a trough. Arranged in the water intake 12 are baffles 17, the height of which is less than the depth of the trough-type water intake 12. Their function is explained below.--

Please replace the paragraph beginning at page 12, line 15, with the following rewritten paragraph:

--Figure 6 shows another embodiment, which differs from the previous embodiments not only in its configuration but also as regards its arrangement. While the previous embodiments essentially have a vertically arranged water-guiding device, as can be seen from

figures 1 to 5, the water-guiding device 11b in the exemplary embodiment in figure 6[, which is denoted by 11b,] is arranged so as to slope slightly relative to the horizontal direction in order to ensure a flow of water from the left-hand edge in figure 6 to the right-hand edge. The water-guiding device 11b comprises a sheet-metal panel 32, which has [elongate slots] guide strips 33 which extend virtually over the entire length of the panel and between which the individual waterways 34, 35, 36 etc. are formed. These waterways are supplied from a water intake 12b, which is fed by a water feed line 16, for which reason small holes 38 are formed for this purpose in the side wall 37 of the water intake 12b that faces the water-guiding device 11b in order to distribute the water between the respective waterways 34, 35, 36 etc. In this exemplary embodiment, too, baffles 17b are arranged in the water intake 12b in order to supply a larger or smaller number of waterways with water, depending on requirements. The right-hand, a slot-free edge 39 of the water-guiding device 11b, which is at a lower level, slopes slightly in an arrow shape toward the center and is provided with a containment plate 40, which is interrupted in the center of the water-guiding device 11b. A drip tongue 41 is formed at this point in order to enable the water guided from the left-hand to the right-hand edge by the water-guiding device 11b to run off more efficiently and in a controlled manner. To prevent the water from overflowing at the lateral edges, low side walls 42 are provided to enclose the water-guiding device 11b.--

Please replace the paragraph beginning at page 13, line 16, with the following rewritten paragraph:

--Water is fed to the respective water-guiding device 11, 11a and 11b via the water intake 12, 12a and 12b, only a little water being fed in [in] the case of steady moisture removal from the cooking area, i.e. when the moisture removal rate is supposed to be low, this water distributing itself between [one or two] a few waterways in the vicinity of the water feed line 16. The water then flows along the path predetermined on the individual waterways 21, 23, 24 or 29 or 34, 35, 36 by corresponding guide elements in the form of elongate holes, slots or the like. During this process, the moving surface of the water is exposed to the atmosphere in the cooking area, so that, if the water is cold enough, moisture condenses at this water surface out of the medium present in the cooking area. The mixture of supplied water and condensate is then collected in the respective

outlet and carried away. Care should be taken here to ensure that this water is drained off from the hot cooking area as quickly as possible to avoid re-evaporation.--

Please replace the paragraph beginning at page 14, line 11, with the following rewritten paragraph:

--Where the atmosphere of the cooking area is relatively dry, this water surface [serves to] can cool the medium in the cooking area, thereby enabling not only the humidity in the cooking area to be regulated - as described previously - but also the temperature.--



**REQUEST FOR PRE-BILL****Date: December 7, 2001**

Please run a pre-bill for the following client matter:

**5150-12PUS**

Please put an **x** where applicable -- the following reflects fees being paid to the PTO (except express mail disbursements) for which you have already requested a check from the office manager

\_\_\_Amendments: (this applies to election, amendments and final amendments)

Extension  
Additional claims  
Express Mail (PCT only)

\_\_\_FMPs: (completion of application for US and Nat'l Phase PCT)

Late declaration  
Assignment  
Express Mail (PCT only)

\_\_\_x New Appls: (design, utility, PCT, Nat'l Phase PCT, etc.)

x Filing Fee  
x Assignment  
Translation  
Express Mail

Please return this pre-bill to: **Rebecca Velez** (TCP/BF)

PLEASE NOTE that for all cases for which TCP is the "responsible" attorney the pre-bill request is to be given to Brigitte **TOGETHER WITH THE DOCKETING SHEET** - accounting has been instructed not to accept "direct" requests.

Note To Accounting: Please return the corresponding pre-bills to Brigitte

(12) NACH DEM VERTRAG ÜBER DIE INTERNATIONALE ZUSAMMENARBEIT AUF DEM GEBIET DES  
PATENTWESENS (PCT) VERÖFFENTLICHTE INTERNATIONALE ANMELDUNG

(19) Weltorganisation für geistiges Eigentum  
Internationales Büro



(43) Internationales Veröffentlichungsdatum  
21. Dezember 2000 (21.12.2000)

PCT

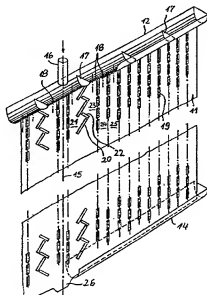
(10) Internationale Veröffentlichungsnummer  
WO 00/76382 A2

- (51) Internationale Patentklassifikation<sup>7</sup>: A47J 39/00, F24C 15/32 (72) Erfinder; und  
(75) Erfinder/Anmelder (nur für US): SCHWARZBÄCKER, Werner [DE/DE]; Kerschgarten 3, D-82436 Eglfing (DE).  
(21) Internationales Aktenzeichen: PCT/EP00/04944 HORVATH, Jenő [DE/DE]; Rottannenweg 2, D-70184 Stuttgart (DE).  
(22) Internationales Anmeldedatum: 30. Mai 2000 (30.05.2000) (74) Anwalt: ZMYJ, Erwin; Rosenheimer Strasse 52, D-81669 München (DE).  
(25) Einreichungssprache: Deutsch (81) Bestimmungsstaaten (national): JP, US.  
(26) Veröffentlichungssprache: Deutsch (84) Bestimmungsstaaten (regional): europäisches Patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE).  
(30) Angaben zur Priorität: 199 26 485.6 10. Juni 1999 (10.06.1999) DE  
(71) Anmelder (für alle Bestimmungsstaaten mit Ausnahme von US): CONVOTHERM ELEKTROGERÄTE GMBH [DE/DE]; Talstrasse 35, D-82436 Eglfing (DE).  
Veröffentlicht:  
— Ohne internationalen Recherchenbericht und erneut zu veröffentlichen nach Erhalt des Berichts.

[Fortsetzung auf der nächsten Seite]

(54) Title: METHOD AND DEVICE FOR ADJUSTING MOISTURE IN COOKING DEVICES

(54) Bezeichnung: VERFAHREN UND VORRICHTUNG ZUR REGELUNG DER FEUCHTIGKEIT IN GARGERÄTEN



(57) Abstract: A device for adjusting or controlling moisture and/or temperature, arranged in the cooking area of a cooking device, comprising a water circulation device (11) with an adjustable and controllable water intake (12) in addition to a water outlet (14), whereby the water circulation device (11) has guiding elements (20) in the form of longitudinal holes in order to conduct the water flowing therefrom in a specific direction. The steam occurring in the processing area can, for instance, be condensed on said water surface.

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WO 00/76382 A2

METHOD AND DEVICE FOR REGULATING THE HUMIDITY IN  
COOKING APPLIANCES

- The invention relates to a method for regulating or
- 5 controlling the humidity and/or temperature in a cooking area for food. The invention also relates to a device for regulating or controlling the humidity and/or temperature in a cooking area for food.
- 10 There are various known ways of regulating or controlling humidity and temperature, that is to say essentially the climate in a processing area or cooking area.
- 15 To lower the humidity in a cooking area, DE 28 56 094 A1 has disclosed controlling a fan as a function of the humidity value detected by means of a sensor in order to blow a larger or smaller quantity of air through the processing area by changing the speed of the fan in
- 20 order thereby to remove the excess moisture.
- EP 0 386 862 B1 has furthermore disclosed a method of regulating humidity either by introducing moisture in the form of steam into the cooking area or, to lower
- 25 the humidity, either increasing the air flow through the cooking area or reducing the humidity by means of a condenser, which is designed as a surface condenser. Surface condensers are of complex construction and are relatively sluggish in terms of regulation.
- 30 DE 40 20 762 A1 has disclosed a cooking or roasting appliance in which a water-filled insert, on the surface of which the fat- and flavor-laden vapors drawn off above the cooking plate are precipitated in order
- 35 to remove these additional substances, is provided below the cooking plates. This condensation serves to remove the entrained solids but not to regulate the humidity in the cooking area, which is open on one

side, since so much fresh air is drawn in via the open side that the condensation of the extracted vapors has no effect on the moisture content above the cooking plate.

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DE 30 01 747 A1 describes a cooking appliance in which the vapors that form are extracted by means of an extraction tube in which water is injected to condense these vapors. As in the case of the other known

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devices, in which the vapors are extracted from the processing area, this method of reducing humidity has the disadvantage that large quantities of the heated processing medium have to be extracted in order to precipitate its water content, leading to a major loss

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of energy, which must be balanced out by heating the newly introduced ambient air.

It is the object of the invention to provide a method and a device by means of which both humidity regulation or humidity control and temperature regulation or temperature control can be made possible in a processing area for substances, especially food, while keeping down the use of resources required for

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construction, achieving a high level of performance and sensitive regulation, and avoiding any major losses of energy in the various regulating or control processes.

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According to the invention, this object is achieved in a method of the type stated at the outset by means of a steam/water phase change or a water/steam phase change at an exposed, freely accessible, moving water surface, the intensity of movement of which can be regulated or controlled, the water surface being formed by at least one waterway in the form of a film of water, which is formed on a water-guiding device of low heat capacity.

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By means of the phase change at an exposed, moving water surface, it is possible either to remove moisture

from the atmosphere of the cooking area by condensing water or to increase the partial pressure of the steam in the atmosphere of the cooking area by evaporating water from this exposed water surface and hence to increase the moisture content. It is furthermore possible to cool or, if appropriate, slightly heat the cooking area by means of this exposed, moving water surface, depending on the temperature difference between this water surface and the atmosphere in the cooking area. The humidity or temperature in a processing area or cooking area can thus be regulated or controlled by simple means without the possibility of the disadvantages of previously known condensation methods occurring. In the case of customary surface condensers, there is the disadvantage that they have a relatively large mass and therefore respond sluggishly. Owing to the large mass, which is inherent in their design, a large quantity of cooling fluid is also required. In the case of condensation in the cooking area by water injection, there is the risk that either the material to be processed will be wetted or that the heated walls of the processing area will be cooled too abruptly and will thereby be damaged. These disadvantages are avoided by the invention as the exposed water surface can be formed on devices, e.g. in the form of plates, bars etc., that can be arranged separately from the walls of the processing area, with the result that neither wetting of the material to be processed nor an abrupt chilling effect on the walls of the processing area occur. Moreover, the formation of an exposed water surface does not require devices with a high heat capacity, which make the regulating or control process unnecessarily sluggish. If a waterway that is shallow and therefore has a high ratio of surface area to depth is formed, this has the effect that a regulating or control process that is initiated responds quickly without the occurrence of a high water consumption.

- According to an advantageous development of the invention, the intensity of movement of the water surface can be regulatable by changing the angle of inclination of the device carrying it. The intensity of movement of the water surface can also be regulatable by means of obstacles. It is expedient here to alter the effect of the obstacles by changing their number and/or size and/or position.
- In order to achieve adaptation of a condensation process, for example, to the quantity of water to be removed from the processing area, a further refinement of the invention envisages that the size of the water surface can be regulated or controlled. It is likewise advantageously possible for the quantity of water fed in per unit time for the phase change, i.e. the water flow, to be regulated or controlled.
- In addition to the measures already explained, the influence on the humidity or temperature in the processing area can also be advantageously exerted by regulatable circulation of the medium in the processing area. It may be expedient here if the direction of flow of the medium can be set essentially tangentially in or counter to the direction of movement of the water surface because it is thereby possible to influence the intensity of movement of the water surface in addition to the desired mass transfer. To intensify as much as possible the mass transfer between the moving water surface and the medium flowing past it is advantageous to align the flow of medium perpendicularly to the water surface since this results in rapid breakdown of the boundary layer that influences the speed of mass transfer between the water surface and the medium.

All these method-related measures explained above can be employed individually or together in order either to

bring about rapid moisture removal, steady moisture removal, recooling of the atmosphere in the processing area or an increase in humidity by producing steam. Rapid removal of moisture from the processing area or cooking area is carried out in order to prevent a surge of steam when the door of the cooking area is opened, i.e. the emergence of large quantities of steam, which could endanger the operators. The steady removal of moisture represents in a certain way a longer-term process for carrying away the moisture escaping from the material to be processed, for example, without changing all the medium, something that is subject to high energy losses. Recooling of the cooking area is required if it is necessary to transfer from a higher-temperature processing method to a lower-temperature processing method since regulating humidity can involve not only lowering the moisture content but also increasing the moisture content. By means of the method under consideration, a certain production of steam and hence an increase in the humidity in the cooking area can be brought about by means of the phase change provided. In this process, a relatively small quantity of water will be fed to the device carrying the water surface, which contributes to the evaporation of the water fed in owing to its heat content.

A cooking appliance for regulating or controlling the humidity and/or temperature in a cooking area for food, in particular for carrying out the method as claimed in any of claims 1 to 8 is characterized in that a water-guiding device with a low heat capacity, which has a regulatable or controllable water intake and a water outlet and serves to produce at least one moving waterway of shallow water depth in a predetermined path, is used in the cooking area. As a result, it is possible to carry out the method steps explained above in order to achieve the desired effects and advantages. The capacity for a rapid response in regulation or

control is achieved by virtue of the fact that the water-guiding device has a low heat capacity since, by virtue of this property, the relatively thin film of water in the form of a waterway is only slightly  
5 affected by the heat capacity of the water-guiding device.

In order to achieve a low heat capacity, it is advantageous if the water-guiding device is a thin-walled panel with guide elements for determining the direction and speed of the water in each waterway. The panel can preferably be composed of metal, e.g. high-grade steel or aluminum, so that it can withstand the mechanical stresses at the temperatures prevailing in  
10 the cooking area despite a lightweight construction to achieve a low heat capacity.

An advantageous refinement of the invention envisages that the guide elements be formed by elongate holes that are set obliquely to the direction of flow in the manner of a herringbone pattern. Here, the guide elements serve primarily to provide direction rather than to influence the intensity of movement of the water surface.  
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In a preferred refinement of the invention, the guide elements are formed by elongate holes that are formed parallel to the direction of flow and delimit each waterway, the elongate holes having a spacing in the direction of flow that is smaller than their length.  
25 30

The guide elements are formed by raised or recessed embossed features, beads or grooves that delimit at least one waterway provided.

35 The guide elements can also comprise guide strips. The guide strips can be designed as continuous units or they can also comprise short guide pieces.



In order to hinder heat transfer from a waterway to adjacent areas and vice versa within the water-guiding device, apertures are provided on both sides of a waterway. These also serve to improve the flow through the water-guiding device of the medium circulated in the cooking area.

To obtain accurate delimitation of a waterway, the water-guiding device has at least one U-shaped channel, which is mounted on a thin-walled panel. The direction of the waterway on this panel is thus precisely predetermined and, moreover, the mounted U-shaped channel, which is preferably connected to the panel by welding, serves as a reinforcement.

The water-guiding device can also advantageously be designed as a grille with bars extending in the direction of movement of the water surface. A relatively large surface area to be wetted by the water is thereby created in the water-guiding device in combination with a low heat capacity.

If, in a further refinement of the invention, the water-guiding device has interruptions, the water that forms the water surface falls freely in the region of these interruptions, although such a refinement has the advantage that the free-falling water returns to a water-guiding device and thus performs a largely controlled movement.

In a further refinement of the invention, obstacles are provided in the waterway or waterways in order to influence the intensity of movement. The number and/or size and/or position of the obstacles can be varied in order to vary the effect on the intensity of movement.

A simple method of regulating or controlling the number of waterways is achieved by another refinement of the invention, which consists in that the water intake connects the individual waterways to one another and  
5 extends downward from the first to the last waterway, with the result that the individual waterways are supplied with water one after the other as the quantity of water increases.

10 The invention is explained in greater detail below with reference to a number of exemplary embodiments. In the drawing:

Figure 1 shows a section through a cooking appliance  
15 for processing food in schematic form with a device for controlling the humidity and/or temperature in the cooking area;

Figure 2 shows a vertical section of the illustration  
20 in figure 1 with the section passing through the uppermost region of the cooking appliance;

Figure 3 shows a diagrammatic illustration of part of a  
25 device for controlling the humidity and/or temperature in the cooking area;

Figure 4 shows a view of another embodiment of a device  
for controlling the humidity and/or temperature in the cooking area;

30 Figure 5 shows an enlarged partial illustration of the device in figure 4; and

Figure 6 shows another embodiment of a device for  
35 regulating the humidity and/or temperature in a cooking area.

As can be seen from figures 1 and 2, a cooking area 3 is separated off within a housing 1 of a cooking appliance by a dividing wall 2, in which shelves 4 for holding food to be processed are provided on a rack frame (not shown). On the opposite side of the dividing wall 2 from the cooking area 3 is a blower 5, which can be driven by a drive motor 6 and draws in the medium present in the cooking area 3 via a grille 7 and forces this medium into the cooking area via a heater 8 and slots 9. 10 indicates a steam generator, which supplies the steam required to produce a steam atmosphere. Arranged on the opposite boundary wall of the cooking area 3 from the dividing wall 2, with a spacing relative to the latter, is a device, denoted overall by 11, which is used to regulate or control the humidity and/or temperature in the cooking area. This device 11 has a water intake 12, a water-guiding device 13 and a collector, denoted by 14, for water running down and condensate that forms.

Figure 3 shows a first embodiment of a device that is denoted by 11 in figures 1 and 2 and is used to regulate or control the humidity and/or temperature in the cooking area. The illustration in figure 3 shows essentially only parts of half of this device, the center line of which is denoted by 15. In this device, denoted overall by 11, a water feed line 16 is indicated schematically in the center of the water intake 12, which is designed as a trough. Arranged in the water intake 12 are baffles 17, the height of which is less than the depth of the trough-type water intake 12. Their function is explained below.

The water intake 12 is arranged on the upper edge of the water-guiding device 11, which is designed as a panel and comprises a sheet-metal plate composed, for example, of high-grade steel and is cooled by water

flowing down, which emerges from openings 18 in the bottom of the water intake 12.

To ensure that the water emerging from the water intake runs along the water-guiding device 11 in ordered paths or waterways, various apertures or elongate holes are provided in the water-guiding device 11. Arranged immediately adjacent to the center line 15 are rectangular elongate holes 19, the spacing between which is less than their length. Arranged obliquely at a certain distance from these are relatively long elongate holes 20, which are arranged in a herringbone pattern. Both the elongate holes 19 and the obliquely arranged elongate holes 20 serve to channel the water emerging from an opening 18 and thus to delimit a waterway 21. The shorter elongate holes 22 provided at the upper end serve to delimit the adjacent waterway 23 as regards heat conduction, i.e. these elongate holes prevent heat conduction between waterways 21 and 23 in the area between elongate holes 20 that are situated one above the other. To allow the water to run along the elongate holes 20, this being based on the adhesion of the water, and to ensure that this water does not then run around the lower end of the elongate hole 20, possibly creeping across to waterway 23, the elongate holes 20 are embodied with sharp-edged corners to form corresponding separation edges. In the exemplary embodiment illustrated, the further waterways 24, 25 etc. are bounded by rectangular elongate holes 19, which are vertically offset relative to one another. Each waterway 21, 23, 24 and 25 etc. is allocated a respective opening 18 in the water intake 12. The baffles 17 serve to regulate the distribution of the water between adjacent waterways. Accordingly, waterway 21 is wetted first. If a greater cooling effect is required, more water is introduced through the water feed line 16 until the water that cannot flow off through the opening 18 spills over the baffle 17 and

fills the adjoining part of the water intake 12, enabling the openings 18 provided there to feed water to waterways 24 and 25 etc. In this way, parallel waterways can be successively put into operation.

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At the lower end of the water-guiding device 11 is a trough-shaped collector 14, which is in each case allocated to just one half of the water-guiding device. Between the two collectors 14, of which only one is  
10 illustrated, there remains a free area, in which the water-guiding device 11 has a drip tongue 26, which guides the water and the condensate onto the bottom 27 of the cooking appliance in the exemplary embodiment under consideration, the bottom 27 having an outflow  
15 opening 28. The water and condensate flowing off along the water-guiding device 11 thus reaches the bottom of the cooking appliance, which is wetted in this area, with the possible effect of washing away the grease that has dripped down from the material to be processed  
20 and collected there.

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Figures 4 and 5 show an embodiment in which the guiding device 11a is formed by a multiplicity of parallel round bars 29 which pass through openings 30 in the  
water intake 12a, allowing the water fed in at the end  
of the water intake 12a via the water feed line 16 to build up at the projecting bars 29 and flow into the elongate holes 30, whereupon this water distributes  
itself around the round bars 29. This water-guiding  
30 device 11a has a low heat capacity and therefore responds very quickly to changes as regards the quantity and temperature of the water, allowing sensitive regulation to be carried out. As in the embodiment shown in figure 3, a baffle 17 is arranged  
35 in the water intake 12a at certain intervals, these baffles being flooded when there is a relatively large inflow of water, with the result that, in the direction of flow, beginning from the water feed line 16, the

first four round bars 29 are impinged upon first, followed by the subsequent round bars. To obtain such a flow, the water intake 12a is arranged obliquely, as can be seen from figure 4. Provided at the lower end of the water-guiding device 11a is a collector 14a, which has two parts that slope toward the center of the water-guiding device 11a in order to be able to drain off the water flowing down the round bars 29, together with any condensate that may have formed, centrally from the cooking area through an outlet 31 as quickly as possible in order to avoid evaporation of this water to be drained when the temperature in the cooking area is high.

Figure 6 shows another embodiment, which differs from the previous embodiments not only in its configuration but also as regards its arrangement. While the previous embodiments essentially have a vertically arranged water-guiding device, as can be seen from figures 1 to 5, the water-guiding device in the exemplary embodiment in figure 6, which is denoted by 11b, is arranged so as to slope slightly relative to the horizontal direction in order to ensure a flow of water from the left-hand edge in figure 6 to the right-hand edge. The water-guiding device 11b comprises a sheet-metal panel 32, which has elongate slots 33 which extend virtually over the entire length of the panel and between which the individual waterways 34, 35, 36 etc. are formed. These waterways are supplied from a water intake 12b, which is fed by a water feed line 16, for which reason small holes 38 are formed for this purpose in the side wall 37 of the water intake 12b that faces the water-guiding device 11b in order to distribute the water between the respective waterways 34, 35, 36 etc. In this exemplary embodiment, too, baffles 17b are arranged in the water intake 12b in order to supply a larger or smaller number of waterways with water, depending on requirements. The right-hand, slot-free edge 39 of the

water-guiding device 11b, which is at a lower level, slopes slightly in an arrow shape toward the center and is provided with a containment plate 40, which is interrupted in the center of the water-guiding device 11b. A drip tongue 41 is formed at this point in order to enable the water guided from the left-hand to the right-hand edge by the water-guiding device 11b to run off more efficiently and in a controlled manner. To prevent the water from overflowing at the lateral edges, low side walls 42 are provided to enclose the water-guiding device 11b.

The mode of operation of the various embodiments of the device according to the invention is explained below.

15 Water is fed to the respective water-guiding device 11, 11a and 11b via the water intake 12, 12a and 12b, only a little water being fed in in the case of steady moisture removal from the cooking area, i.e. when the moisture removal rate is supposed to be low, this water distributing itself between one or two waterways in the vicinity of the water feed line 16. The water then flows along the path predetermined on the individual waterways 21, 23, 24 or 29 or 34, 35, 36 by  
20 corresponding guide elements in the form of elongate holes, slots or the like. During this process, the moving surface of the water is exposed to the atmosphere in the cooking area, so that, if the water is cold enough, moisture condenses at this water  
25 surface out of the medium present in the cooking area. The mixture of supplied water and condensate is then collected in the respective outlet and carried away. Care should be taken here to ensure that this water is drained off from the hot cooking area as quickly as  
30 possible to avoid re-evaporation.

To avoid a surge of steam when the door of the cooking area is opened, a large amount of steam must be

condensed out of the atmosphere of the cooking area within a relatively short time. For this purpose, a significantly larger part of the water-guiding device 11, 11a and 11b is flooded, sufficient water being  
5 provided in the intake to ensure that water flows over the individual baffles 17, allowing it to distribute itself over the entire water-guiding device, thereby making available a significantly larger water surface and hence a larger condensation area.

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Where the atmosphere of the cooking area is relatively dry, this water surface serves to cool the medium in the cooking area, thereby enabling not only the humidity in the cooking area to be regulated - as  
15 described previously - but also the temperature.

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If the atmosphere in the cooking area is at a very high temperature, the device according to the invention can also be used to increase the humidity. For this purpose  
20 a relatively small amount of water is fed to the water-guiding device, with the result that the latter causes the small amount of water to evaporate owing to its prior heating by the hot atmosphere of the cooking area, thereby enabling the humidity of the cooking area  
25 to be increased.

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PATENT CLAIMS

1. A method for regulating or controlling the humidity and/or temperature in a cooking appliance with a cooking area for food, characterized by a steam/water phase change or a water/steam phase change at an exposed, freely accessible, moving water surface, the intensity of movement of which can be regulated or controlled, the water surface being formed by at least one waterway in the form of a film of water, which is formed on a water-guiding device of low heat capacity.

2. The method as claimed in claim 1, characterized in that the intensity of movement of the water surface can be regulated or controlled by changing the angle of inclination of the water-guiding device carrying it.

3. The method as claimed in claim 1 or 2, characterized in that the intensity of movement of the water surface can be regulated or controlled by means of obstacles.

4. The method as claimed in claim 3, characterized in that the intensity of movement can be regulated or controlled by changing the number and/or size and/or position of the obstacles.

5. The method as claimed in any of claims 1 to 4, characterized in that the size of the water surface can be regulated or controlled.

6. The method as claimed in any of claims 1 to 5, characterized in that the quantity of water fed in per unit time for the phase change, i.e. the water flow, can be regulated or controlled.

7. The method as claimed in any of claims 1 to 6 with regulatable circulation of the medium present in the cooking area, characterized in that the direction of

flow of the medium can be set essentially tangentially in or counter to the direction of movement of the film of water.

- 5 8. The method as claimed in any of claims 1 to 6 with regulatable circulation of the medium present in the cooking area, characterized in that the flow of medium is aligned perpendicularly to the water surface.
- 10 9. A cooking appliance with a cooking area for food for carrying out the method as claimed in any of claims 1 to 8, characterized in that a water-guiding device (11, 11a, 11b) with a low heat capacity, which has a regulatable or controllable water intake (12, 12a, 12b) and a water outlet (14, 14a, 40) and serves to produce at least one moving waterway (21, 23 to 25; 29; 34, 35, 36) of shallow water depth in a predetermined path, is used in the cooking area (3).
- 20 10. The cooking appliance as claimed in claim 9, characterized in that the water-guiding device (11, 11b) is a thin-walled panel with guide elements (20, 33) for determining the direction and speed of the water in each waterway.
- 25 11. The cooking appliance as claimed in claim 9 or 10, characterized in that the panel is composed of metal, e.g. high-grade steel or aluminum.
- 30 12. The cooking appliance as claimed in any of claims 9 to 11, characterized in that the guide elements (20) are formed by elongate holes that are set obliquely to the direction of flow in the manner of a herringbone pattern.
- 35 13. The cooking appliance as claimed in any of claims 9 to 11, characterized in that the guide elements are formed by elongate holes (19) that are formed parallel

to the direction of flow and delimit each waterway (24, 25), the elongate holes having a spacing in the direction of flow that is smaller than their length.

- 5 14. The cooking appliance as claimed in any of claims 9 to 11, characterized in that the guide elements are formed by raised or recessed embossed features or beads or grooves that delimit at least one waterway provided.
- 10 15. The cooking appliance as claimed in any of claims 9 to 11, characterized in that the guide elements comprise guide strips.
16. The cooking appliance as claimed in claim 15, characterized in that the guide strips are designed as continuous units.
17. The cooking appliance as claimed in claim 15, characterized in that the guide strips comprise short guide pieces.
- 20 18. The cooking appliance as claimed in any of claims 9 to 17, characterized in that apertures (22) are provided on both sides of a waterway.
- 25 19. The cooking appliance as claimed in claim 9, characterized in that the water-guiding device has at least one U-shaped channel, which is mounted on a thin-walled panel.
- 30 20. The cooking appliance as claimed in claim 9, characterized in that the water-guiding device (11a) is designed as a grille with bars (29) extending in the direction of movement of the water surface.
- 35 21. The cooking appliance as claimed in any of claims 9 to 17, characterized in that the water-guiding device has interruptions.

22. The cooking appliance as claimed in any of claims 9 to 21, characterized in that obstacles are provided in the waterway or the.

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23. The cooking appliance as claimed in claim 22, characterized in that the number and/or size and/or position of the obstacles can be varied.

- 10 24. The cooking appliance as claimed in any of claims 9 to 23, characterized in that the water intake (12; 12a; 12b) connects the individual waterways (21, 23-25; 29, 34, 36) to one another and extends downward from the first to the last waterway, with the result that the
- 15 individual waterways are supplied with water one after the other as the quantity of water increases.

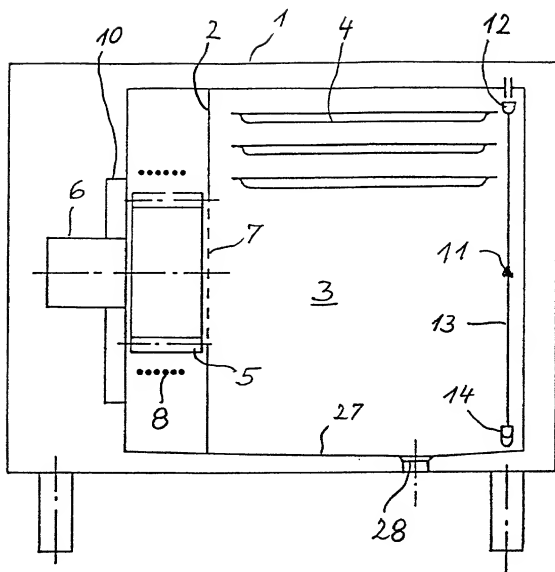


Fig. 1

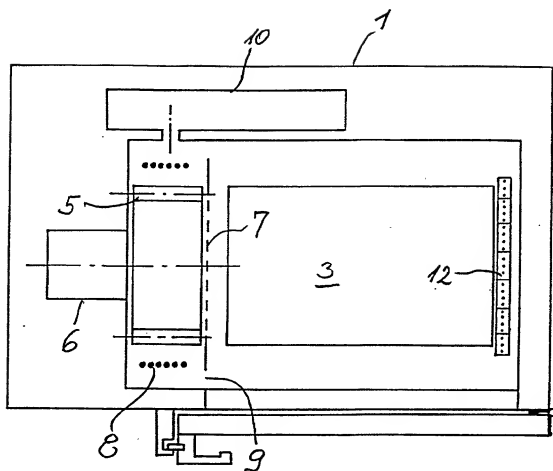


Fig. 2

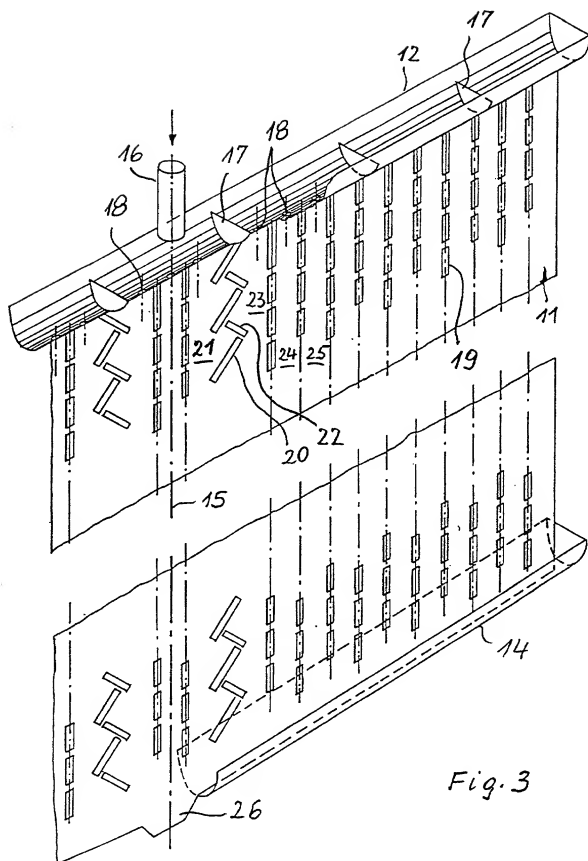


Fig. 3

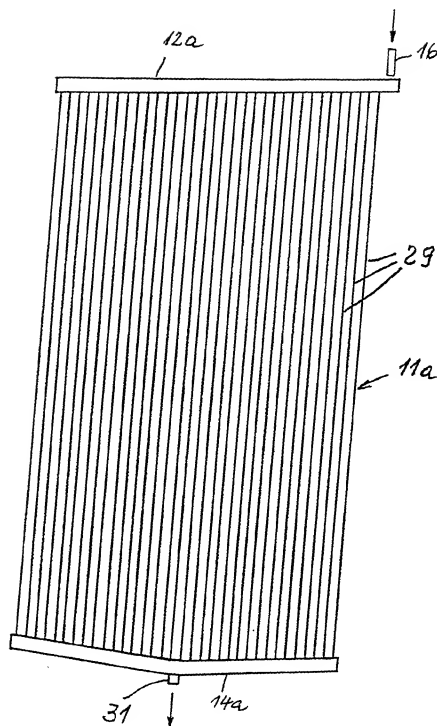
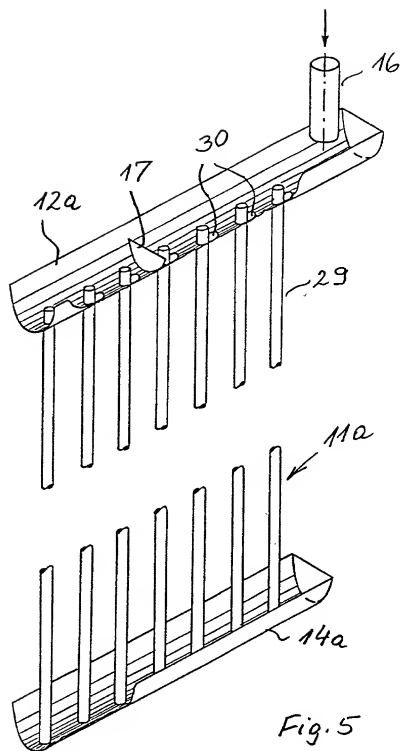


Fig. 4





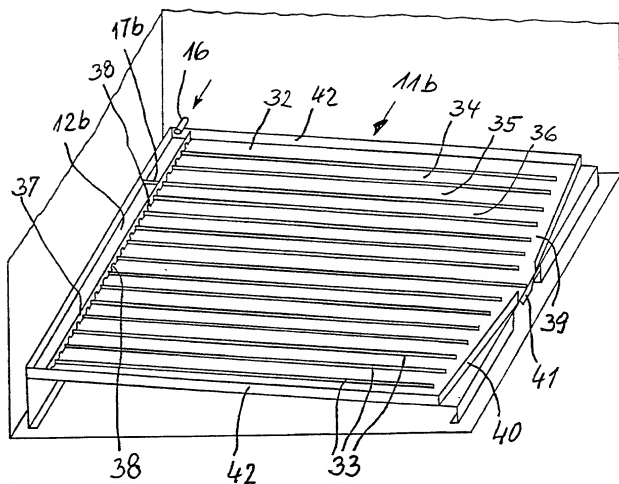


Fig. 6

**Combined Declaration for Patent Application and Power of Attorney (Continued)**  
(Includes Reference to PCT International Applications)

Attorney's Docket No.  
5150-12PUS

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT international application(s) designating the United States of America that is/are listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in that/those prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application(s) and the national or PCT international filing date of this application:

PRIOR U.S. APPLICATIONS OR PCT INTERNATIONAL APPLICATIONS DESIGNATING THE U.S. FOR BENEFIT UNDER 35 U.S.C. 120:

U.S. APPLICATIONS			STATUS (check one)		
U.S. APPLICATION NUMBER	U.S. FILING DATE		PATENTED	PENDING	ABANDONED
PCT APPLICATIONS DESIGNATING THE U.S.					
PCT APPLICATION NO.	PCT FILING DATE	U.S. SERIAL NUMBERS ASSIGNED (if any)			
PCT/EP00/04944	30 May 2000			x	

**POWER OF ATTORNEY:** As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith (*List name and registration number*)

MYRON COHEN, Reg. No. 17,358; THOMAS C. PONTANI, Reg. No. 29,763; LANCE J. LIEBERMAN, Reg. No. 28,437; MARTIN B. PAVANE, Reg. No. 28,337; MICHAEL C. STUART, Reg. No. 35,698; KLAUS P. STOFFEL, Reg. No. 31,668; EDWARD WEISZ, Reg. No. 37,257; VINCENT M. FAZZARI, Reg. No. 26,879; JULIA S. KIM, Reg. No. 36,567; ALFRED FROEBRICH, Reg. No. 38,887; ALFRED H. HEMINGWAY, JR., Reg. No. 26,736; KENT H. CHENG, Reg. No. 33,849; YUNLING REN, Reg. No. 47,019; ROGER S. THOMPSON, Reg. No. 29,594; BRICE FALLER, Reg. No. 29,532; DAVID J. ROSENBLUM, Reg. No. 37,709; TONY CHEN, Reg. No. 44,607; ELI WEISS, Reg. No. 17,765.

Send correspondence to:  
Thomas C. Pontani  
Reg. No. 29,763  
Cohen, Pontani, Lieberman & Pavane  
551 Fifth Avenue, Suite 1210  
New York, New York 10176

Direct Telephone calls to:  
(name and telephone number)  
Thomas C. Pontani  
(212) 687-2770

NEW YORK, NEW JERSEY				
2 0 1	FULL NAME OF INVENTOR	FAMILY NAME <u>SCHWARZBÄCKER</u>	FIRST GIVEN NAME <u>Werner</u>	SECOND GIVEN NAME
	RESIDENCE, CITIZENSHIP	CITY <u>Egging</u> <i>DEU</i>	STATE OR FOREIGN COUNTRY <u>Germany</u>	COUNTRY OF CITIZENSHIP <u>Germany</u>
	POST OFFICE ADDRESS	POST OFFICE ADDRESS <u>Kerschgarten 3</u>	CITY <u>Egging</u>	STATE & ZIP CODE/COUNTRY <u>Germany 82436</u>
2 0 2	FULL NAME OF INVENTOR	FAMILY NAME <u>HORWATH</u>	FIRST GIVEN NAME <u>Jenö</u>	SECOND GIVEN NAME
	RESIDENCE, CITIZENSHIP	CITY <u>Stuttgart</u> <i>DEU</i>	STATE OR FOREIGN COUNTRY <u>Germany</u>	COUNTRY OF CITIZENSHIP <u>Austria</u>
	POST OFFICE ADDRESS	POST OFFICE ADDRESS <u>Rottannenweg 2</u>	CITY <u>Stuttgart</u>	STATE & ZIP CODE/COUNTRY <u>Germany 70184</u>



Combined Declaration for Patent Application and Power of Attorney (Continued) (Includes Reference to PCT International Applications)				Attorney's Docket No. 5150-12PUS
2 0 3	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE, CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.</p>				
SIGNATURE OF INVENTOR 201		SIGNATURE OF INVENTOR 202		SIGNATURE OF INVENTOR 203
DATE 11.30.01		DATE		DATE

1009544-720701

Combined Declaration for Patent Application and Power of Attorney (Continued) (Includes Reference to PCT International Applications)				Attorney's Docket No. 5150-12PUS
2 0 3	FULL NAME OF INVENTOR	FAMILY NAME	FIRST GIVEN NAME	SECOND GIVEN NAME
	RESIDENCE, CITIZENSHIP	CITY	STATE OR FOREIGN COUNTRY	COUNTRY OF CITIZENSHIP
	POST OFFICE ADDRESS	POST OFFICE ADDRESS	CITY	STATE & ZIP CODE/COUNTRY
<p>I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.</p>				
SIGNATURE OF INVENTOR 201		SIGNATURE OF INVENTOR 202 <i>J. Kwolek</i>		SIGNATURE OF INVENTOR 203
DATE		DATE <i>Nov. 28th 2001</i>		DATE

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